

Appl. No. : 10/607,277
Filed : September 10, 2004

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AMENDMENTS TO THE CLAIMS

1. (Currently amended) A purification method for ~~oxidatively damaged guanine nucleosides generated as a result of guanine damage in DNA or RNA~~ 8-hydroxydeoxyguanosine (8-OH-dG) contained in a urine sample, comprising a first purification step for purifying ~~oxidatively damaged guanine nucleosides contained in a sample~~ the 8-OH-dG from the urine sample by anion-exchange chromatography using a resin having a particle diameter of 7 to 12 μ m.

2. (Canceled)

3. (Currently amended) A purification method ~~for 8-hydroxydeoxyguanosines (8-OH-dG) contained in a sample~~ according to claim 1, wherein ~~8-hydroxyguanosines (ribonucleosides)~~ 8-hydroxydeoxyguanosine ribonucleoside (8-OH-rGuo) ~~are~~ is previously added to the sample as an internal standard marker for 8-OH-dG so as to purify it.

4. (Currently amended) A purification method ~~for 8-hydroxydeoxyguanosines (8-OH-dG) contained in a sample, wherein 8-hydroxyguanosine (ribonucleosides) (8-OH-rGuo) is previously added to the sample, comprising a first purification step for purifying said sample by anion-exchange chromatography, and~~ according to claim 1 or 3, further comprising a second purification step for further purifying the fraction containing 8-OH-dG obtained in the first purification step by reverse phase chromatography.

5. (Canceled)

6. (Canceled)

7. (Withdrawn) A measuring method for oxidatively damaged guanine nucleosides comprising a measuring step for measuring purified oxidatively damaged guanine nucleosides obtained by the purification method of claim 1 or claim 2.

Appl. No. : 10/507,277
Filed : September 10, 2004

8. (Withdrawn) A measuring method for 8-OH-dG comprising a measuring step for measuring purified 8-hydroxydeoxyguanosines (8-OH-dG) obtained by the purification method of claim 3 or claim 4.

9. (Withdrawn) A measuring method for 8-OH-dG according to claim 8, wherein said purified 8-hydroxydeoxyguanosines (8-OH-dG) are measured in anion-exchange chromatography in the order of;

- (1) peak recognition of ribonucleosides 8-OH-rGuo,
- (2) starting of 8-OH-dG fractionation after a fixed time,
- (3) finishing of 8-OH-dG fractionation after a fixed time, and
- (4) optionally mixing 8-OH-dG fractions,
and then injected into a reverse phase column.

10. (Withdrawn) An apparatus for purifying and measuring 8-hydroxydeoxyguanosines (8-OH-dG), comprising;

an anion-exchange column (HPLC-1) which specifically absorbs 8-OH-dG contained in a sample,

a UV detector which detects an elution position of 8-hydroxyguanosine (ribonucleoside) (8-OH-rGuo),

a reverse phase column (HPLC-2) which further purifies the fraction containing 8-OH-dG obtained from the anion-exchange column (HPLC-1), and

a detector which measures the purified 8-OH-dG obtained from the reverse phase column (HPLC-2).

11. (Withdrawn) A program for controlling a process for recovering 8-hydroxydeoxyguanosines (8-OH-dG) contained in a sample by column chromatography, which executes on a computer processes for:

receiving a peak signal of a marker (8-OH-rGuo) previously added to the sample from a UV detector;

outputting a signal to open a valve connected to a sampler, during 8-OH-dG elution after a fixed time;

Appl. No. : 10/507,277
Filed : September 10, 2004

starting fractionation; and
outputting a fractionation termination signal after another fixed time;
and then outputting a signal to inject the obtained 8-OH-dG fraction into a second
purifying column;
thereby purifying and recovering a detected substance (8-OH-dG) eluted from the
column.

12. (Withdrawn) A measuring method for oxidatively damaged guanine nucleosides comprising a measuring step for measuring purified oxidatively damaged guanine nucleosides obtained by the purification method of claim 5.

13. (Withdrawn) A measuring method for 8-OH-dG comprising a measuring step for measuring purified 8-hydroxydeoxyguanosines (8-OH-dG) obtained by the purification method of claim 6.

14. (New) A purification method according to claim 1, wherein the first purification step is conducted using a column having an internal diameter of 1 to 1.5 mm.